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Atty. Docket No. 5010-001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)	Group Art Unit No.: 1753
Timothy M. Woudenberg et al. Mutschler	)	Examiner: Brian L.
Application No.: 09/938,947	)	
Filed: August 24, 2001	)	
For: BUBBLE-FREE AND PRESSURE-GENERATING ELECTRODES FOR ELECTROPHORETIC AND ELECTROOSMOTIC DEVICES	)	

DECLARATION OF TIMOTHY M. WOUDENBERG UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Timothy M. Woudenberg, declare and affirm as follows:

1. I am a Director of Scientific Operations at Applied Biosystems Group of Applera Corporation in Foster City, California.

2. I received a Bachelor of Arts Degree in Chemistry from Purdue University in 1980, and a Ph. D. Degree in Physical Chemistry from Tufts University in 1988. In the years from 1987 to 1993, I worked as an engineer with Perkin-Elmer Corporation, where I was involved in product development of scientific instruments. In 1993 I transferred to Applied Biosystems division of Perkin-Elmer where I was involved in product development and later in 1996 moved into a science and technology research group there. I have been there ever since, though the company has changed its name and my title has also changed numerous times.

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3. I have authored or co-authored nine papers. I am a co-inventor on sixteen United States patents and foreign counterparts thereof. I am familiar with the field of electrophoretic and electroosmotic applications, particularly in their use with regard to separating and concentrating biomolecules.

4. I have reviewed the above-identified patent application, the pending claims, the Office Action dated March 16, 2004, the references cited therein, the Amendment and Response filed on July 16, 2004, and the results of the personal interview conducted with Examiner Mutschler on August 9, 2004. I understand that claims 1-7, 16-23, and 32-36 were rejected by the Examiner under 35 U.S.C. § 102(b) as allegedly being anticipated by Bjornson et al. (U.S. Patent No. 6,103,199). Additionally, claims 1-6, 13, 14, 16, 18, 20-23, 28, 30, 32, 34, and 35 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Cabilly et al. (U.S. Patent No. 6,379,516). Claims 1-7, 16-23, and 32-36 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ramsey (U.S. Patent No. 6,001,229) in view of WO 00/74850. Claims 8-12 and 24-28 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Cabilly et al., and further in view of Yano et al. (U.S. Patent No. 6,077,625). The Examiner relies primarily on one or more of Bjornson et al., Cabilly et al., or WO 00/74850, for a disclosure of a palladium electrode that is capable of absorbing hydrogen and allegedly capable of operating in a bubble-free manner.

5. I understand that Bjornson et al. discloses the use of palladium on an electrode. However, independent claims 1 and 20 of the present application require a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of an anodic reservoir and a cathodic reservoir,

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with a power source having a positive terminal in electrical contact with the first electrode, and a negative terminal in electrical contact with the second electrode. Accordingly, independent claims 1 and 20 require a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being connected to a positive terminal of a power source and thereby operated as an anode. In contrast to the claimed invention, as set forth in independent claims 1 and 20, Cabilly et al. discloses an anode that is made of aluminum, with the cathode being formed of palladium. Cabilly et al. provides absolutely no disclosure or suggestion of providing an anode made from palladium that has been precharged as a cathode in order to absorb hydrogen therein. Bjornson et al. is relied upon for a disclosure of providing an electrode with palladium. Bjornson et al. does not provide any disclosure or suggestion of precharging an electrode as a cathode in order to absorb hydrogen therein, and then operating the precharged electrode as an anode by connecting the precharged electrode to a positive terminal of a power source.

6. A palladium electrode that is operated as an anode would have a completely different structure than the anode of the present invention, wherein the anode has first been precharged as a cathode to have hydrogen absorbed therein. This is because while being operated as an anode, a palladium electrode would not be capable of absorbing hydrogen.

7. Although a palladium electrode is capable of absorbing hydrogen, the structure of such an electrode that has not been precharged as a cathode would be completely different from the structure of the bubble-free electrode of the present claimed invention wherein the bubble-free electrode has been precharged as a cathode to have hydrogen absorbed therein, and then is operated as an anode by connection to a positive terminal of a power source. This is because the

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amount of hydrogen in ambient atmosphere is so small that without a driving force, such as would be obtained by precharging the palladium electrode as a cathode, the palladium electrode would not absorb hydrogen in a significant measurable amount.

8. The amount of hydrogen that can be charged in palladium by exposing the metal to a hydrogen-containing atmosphere is directly related to the concentration of hydrogen in that atmosphere. This amount is negligibly small, much less than 1% of the capacity of palladium, given that the occurrence of hydrogen in earth's atmosphere is less than one part per million (Budavari, S. (ed.) The Merck Index – An Encyclopedia of Chemicals, Drugs and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 1996. 821 ** Peer Reviewed **).

9. Accordingly, a bubble-free electrode that has been precharged as a cathode to have hydrogen absorbed therein, would have a significantly different structure than a palladium electrode that is simply exposed to atmosphere. Furthermore, neither Bjornson et al. nor Cabilly et al. provide any disclosure or suggestion of providing such a bubble-free electrode that has been precharged as a cathode to have hydrogen absorbed therein and connecting this bubble-free electrode to a positive terminal of a power source such that it is operated as an anode.

10. WO 00/74850 also fails to provide any disclosure or suggestion of a bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode then being operated as an anode by connection to a positive terminal of a power source. WO 00/74850 discloses the use of "nongassing" electrode material such as palladium, but does not provide any disclosure or suggestion of precharging such an electrode as a cathode to have hydrogen absorbed therein, and then operating the precharged, bubble-free electrode as an anode by connection to a positive terminal of a power source. Accordingly, for

the same reasons as discussed above, a palladium electrode that has not been first precharged as a cathode to have hydrogen absorbed therein, would have a completely different structure than the bubble-free electrode of the present claimed invention, in which the bubble-free electrode has been precharged as a cathode to have hydrogen absorbed therein.

11. In summary, I believe that the present invention, and in particular independent claims 1 and 20, disclose a device that is novel and non-obvious in view of the references that have been applied by the Examiner. For at least the reasons discussed above, I believe that claims 1, 5-14, 16-30, and 32-36 are in condition for allowance.

12. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Sept. 14, 2004
Date

Timothy M. Woudenberg

Patent Technology Center 1700

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Fax Notes:

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RE: U.S. Patent Application No. 09/938,947
Filed: August 24, 2001
Confirmation No.: 2655
Attorney Docket No.: 5010-001

FROM: William O. Trousdell

FAC. NO.: (571) 273-1341

NUMBER OF PAGES (INCLUDING THIS COVER SHEET): 6

Items Attached: Declaration Under 37 C.F.R. 1.132 5 Pages

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (571) 273-1341 on September 15, 2004.

William O. Trousdell — William O. Trousdell
Printed Name: Signature